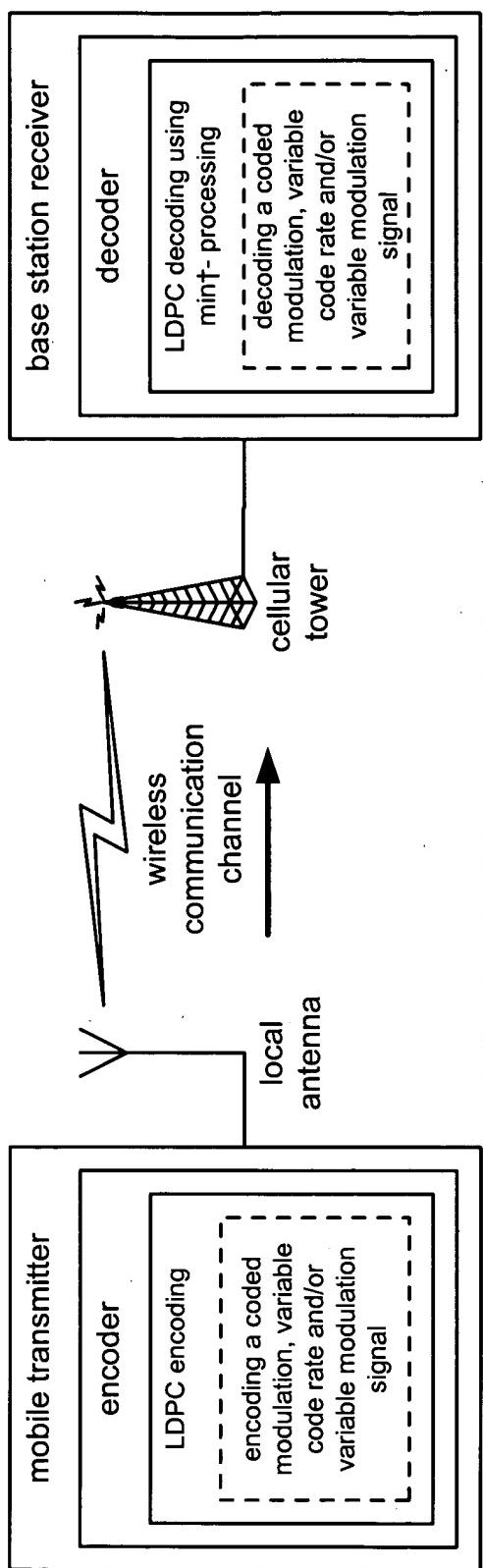
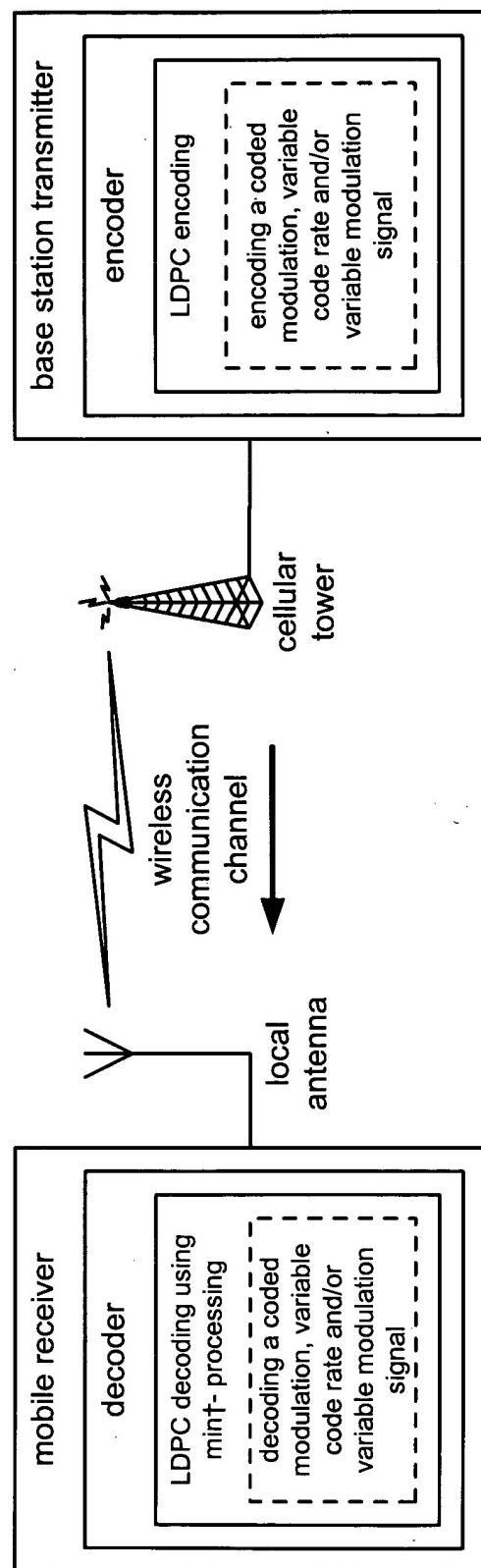


HDTV (High Definition Television) communication system

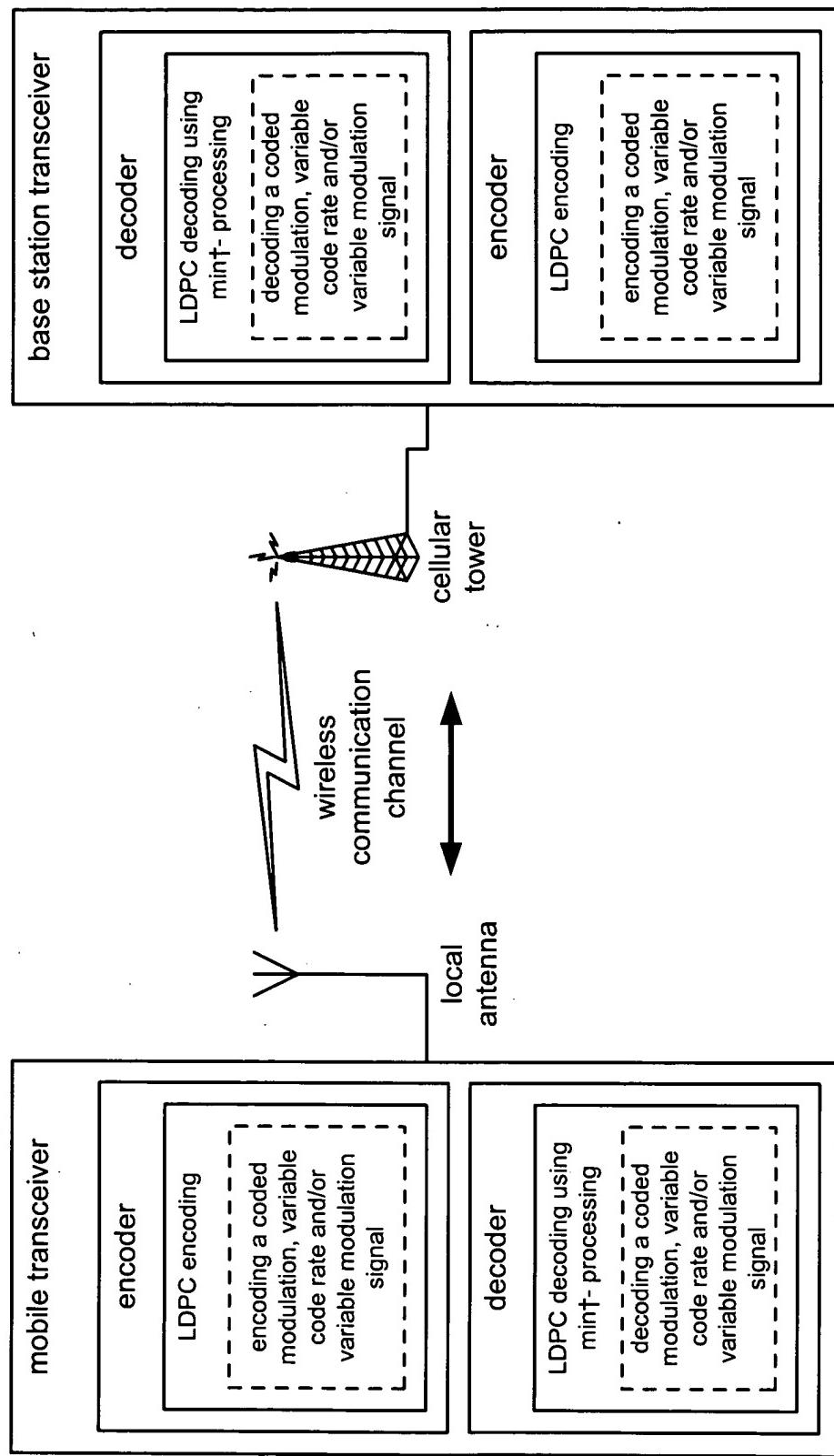
**Fig. 2**



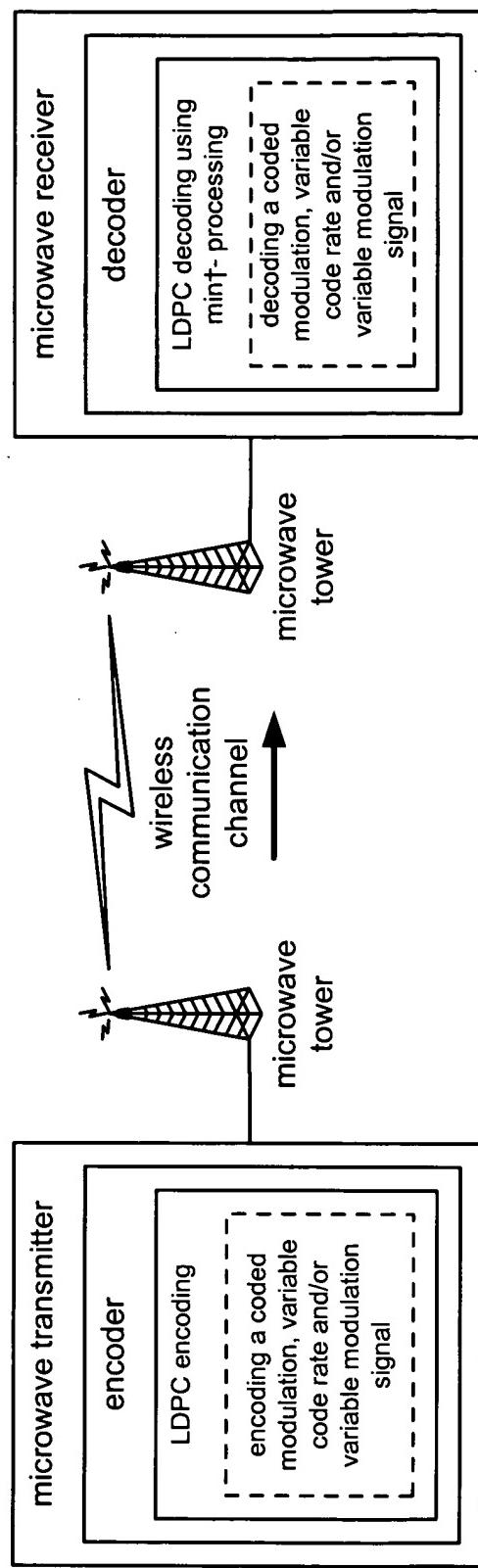
**Fig. 3A**



**Fig. 3B**

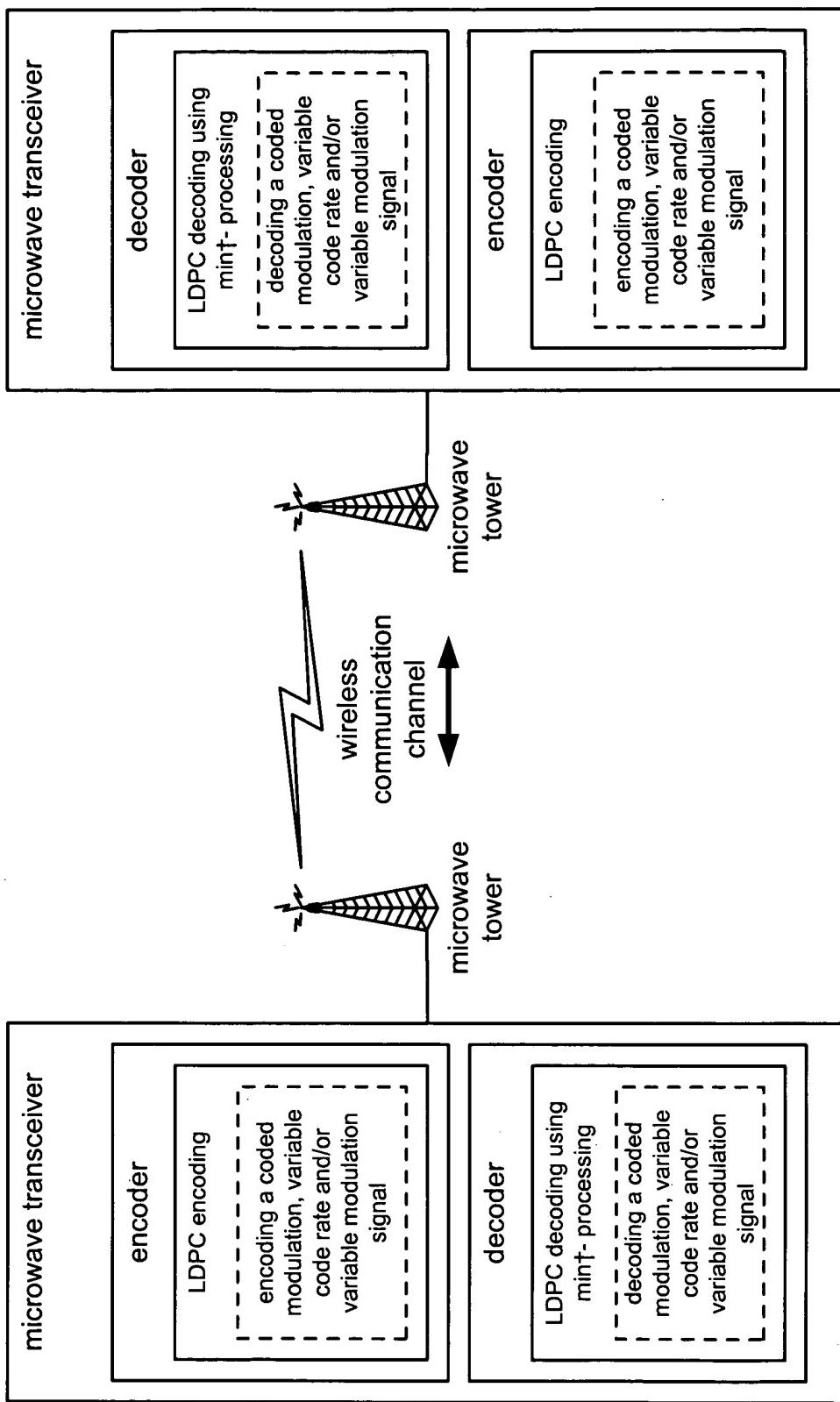


bi-directional cellular communication system  
**Fig. 4**



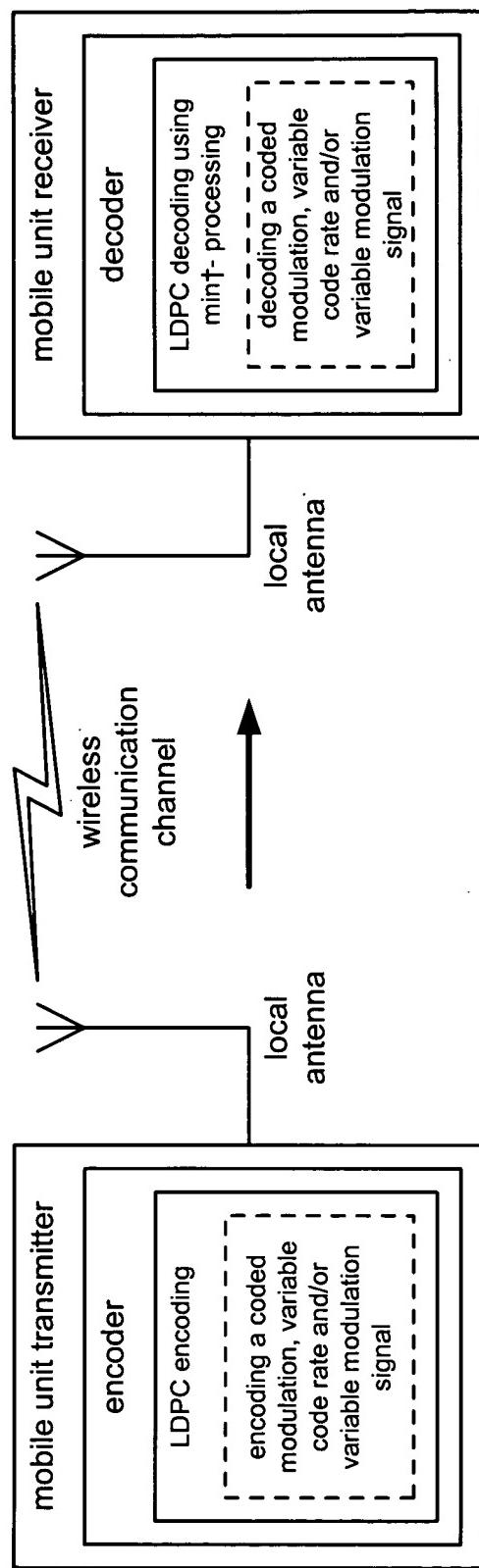
uni-directional microwave communication system

**Fig. 5**



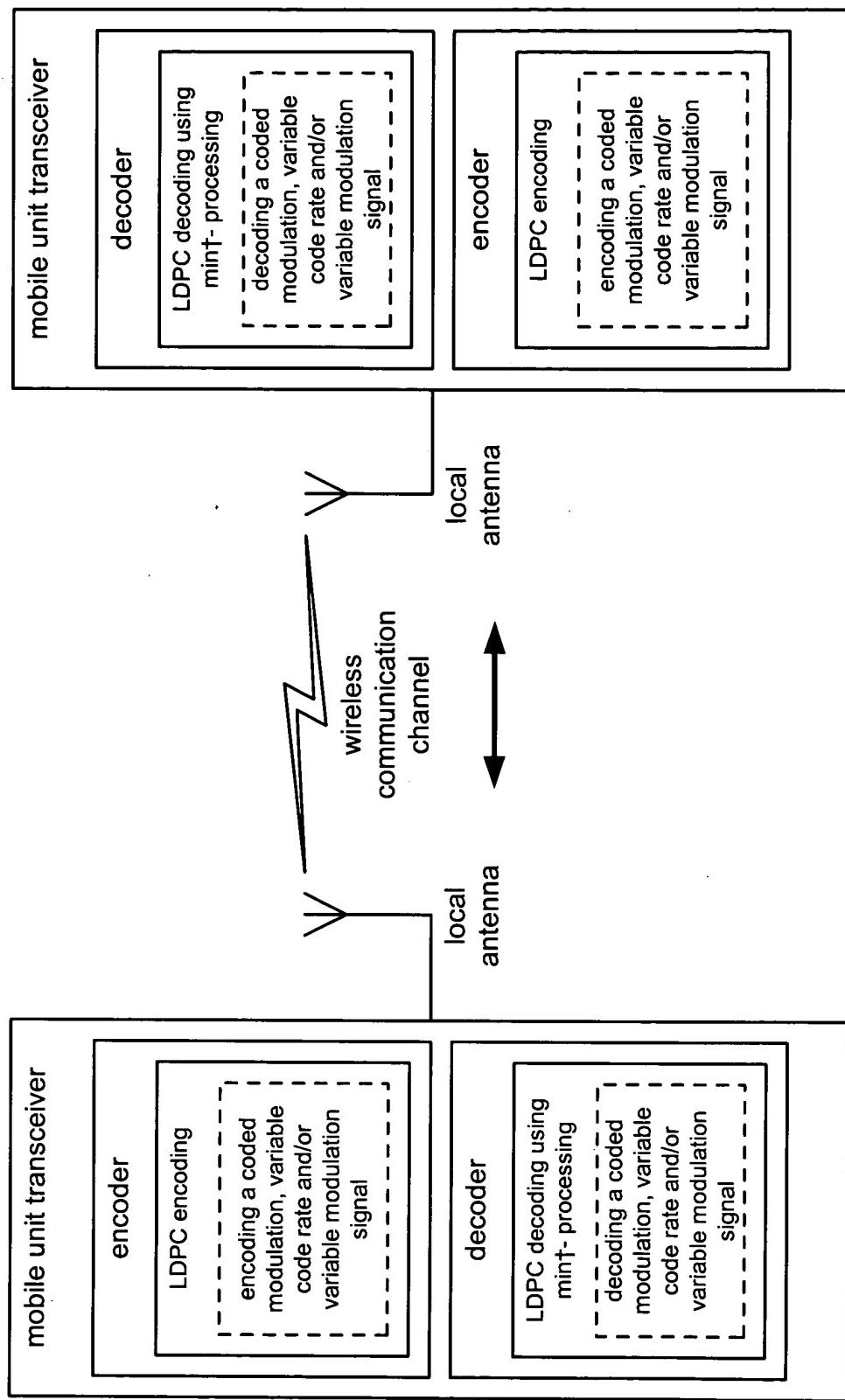
bi-directional microwave communication system

**Fig. 6**



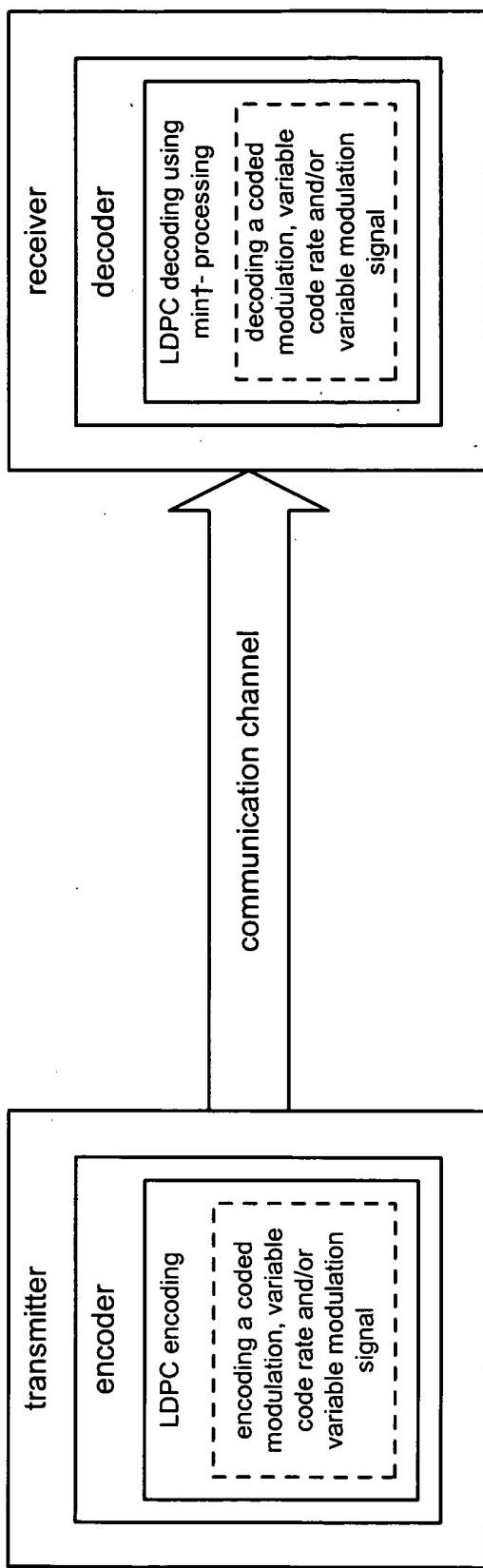
uni-directional point-to-point radio communication system

**Fig. 7**



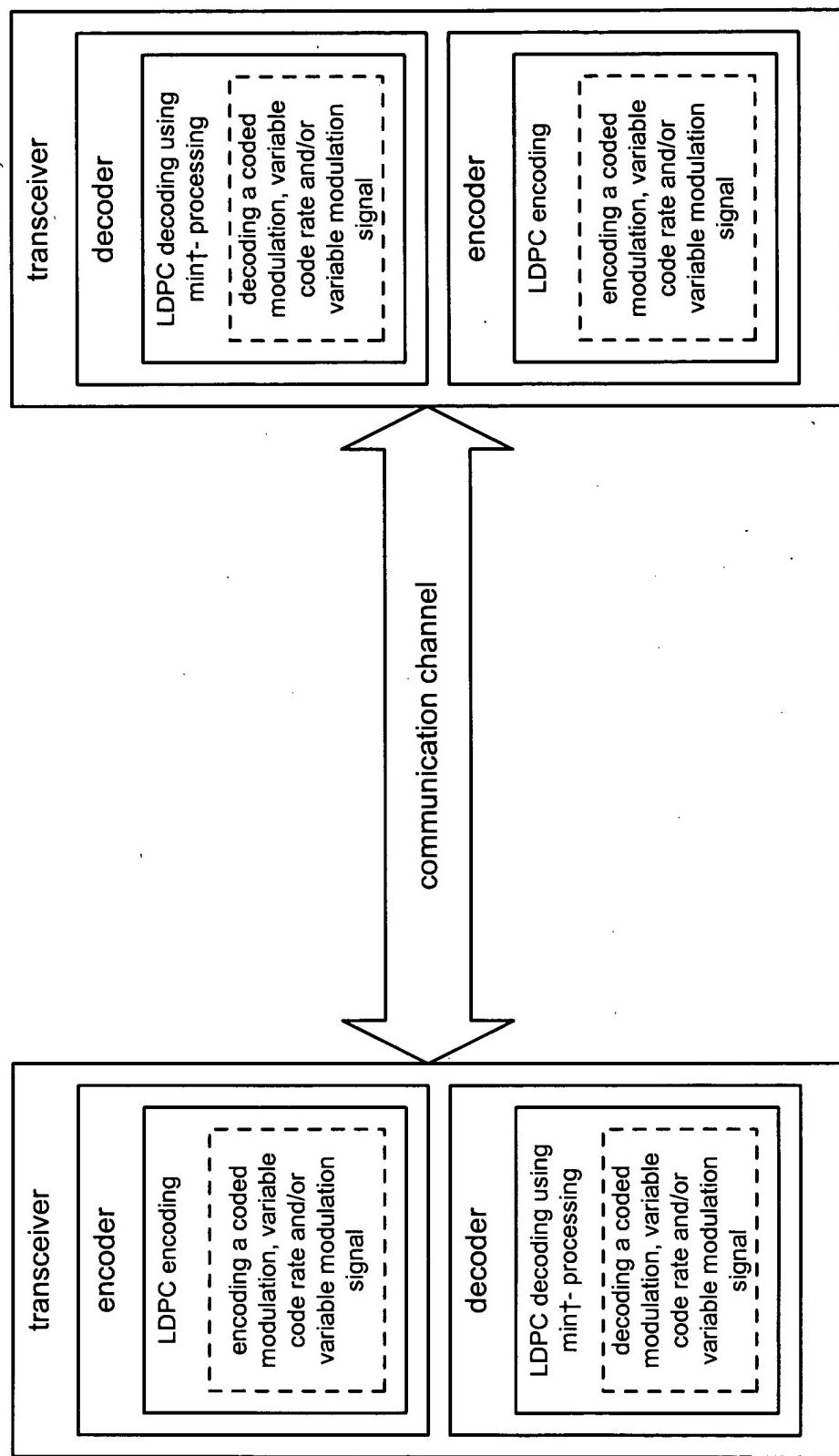
bi-directional point-to-point radio communication system

**Fig. 8**

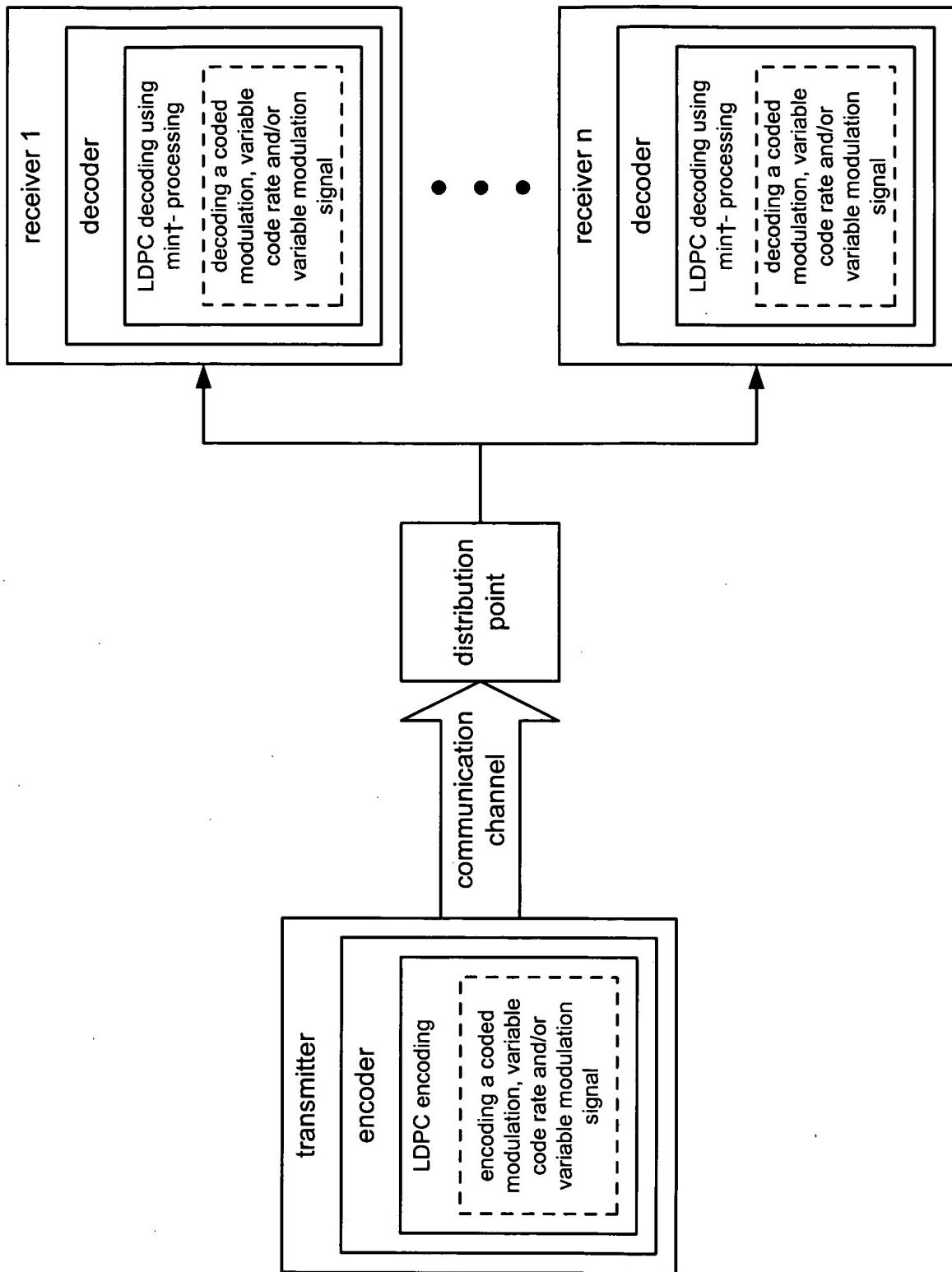


uni-directional communication system

**Fig. 9**

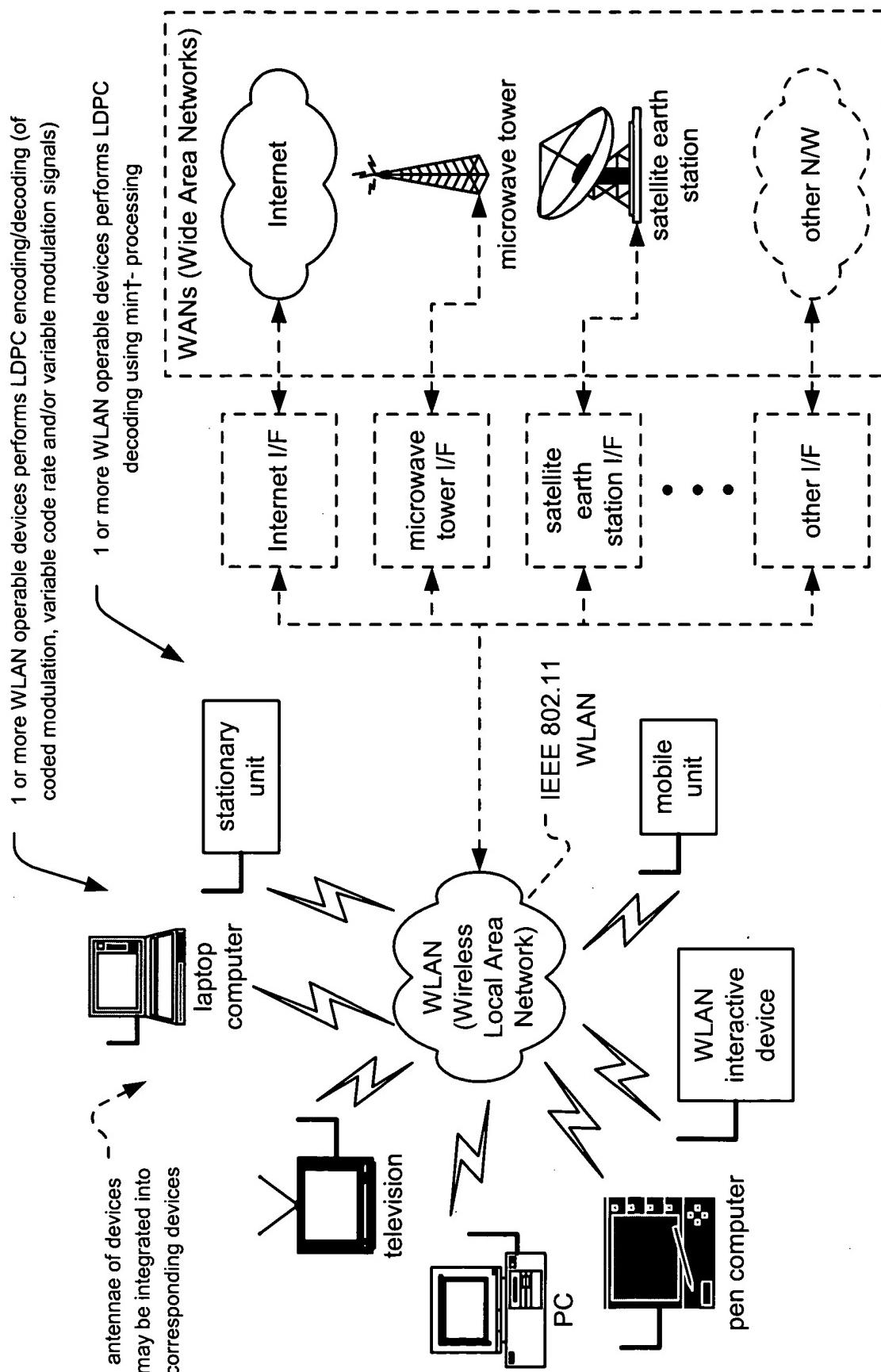


bi-directional communication system  
**Fig. 10**



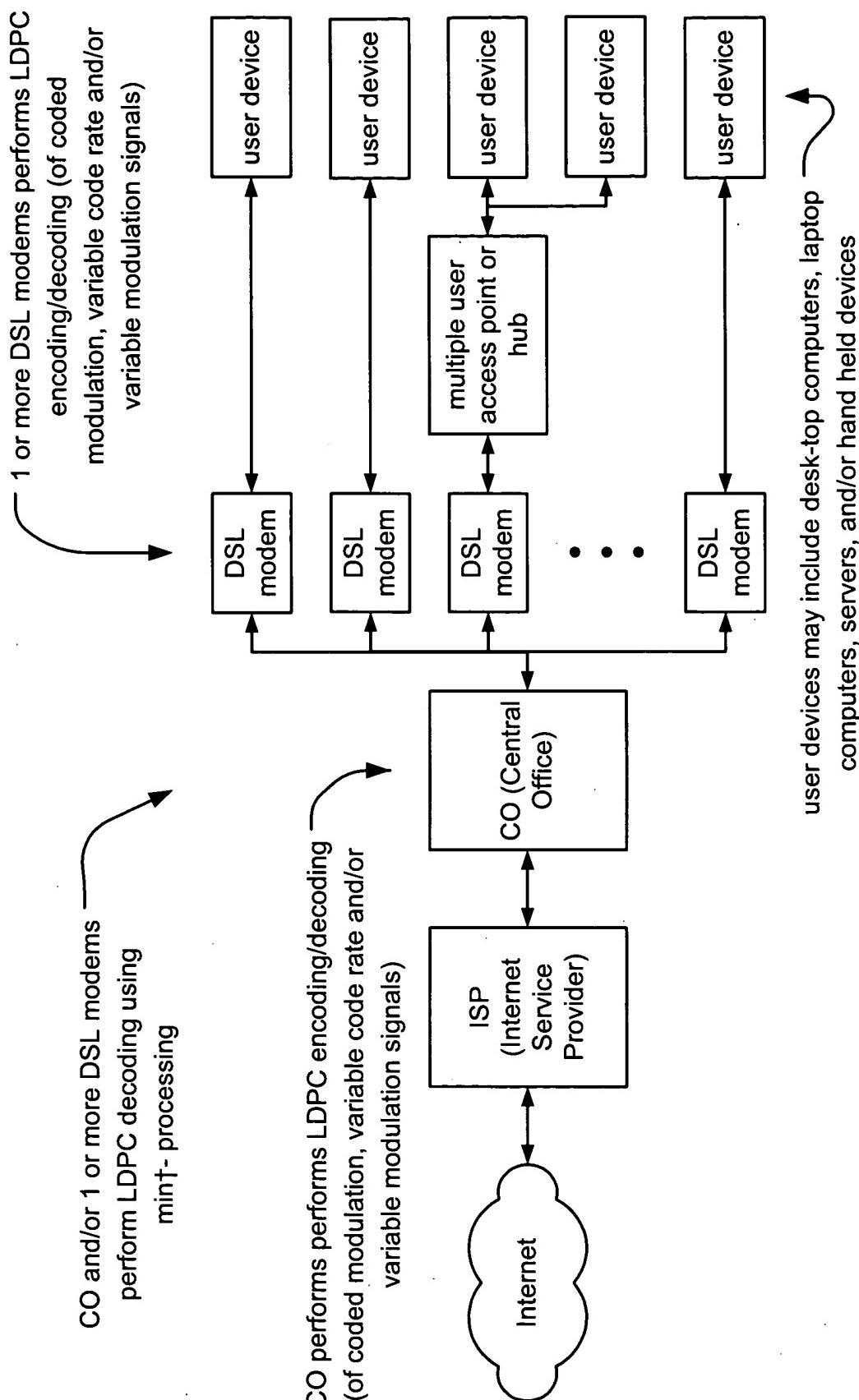
one to many communication system

**Fig. 11**



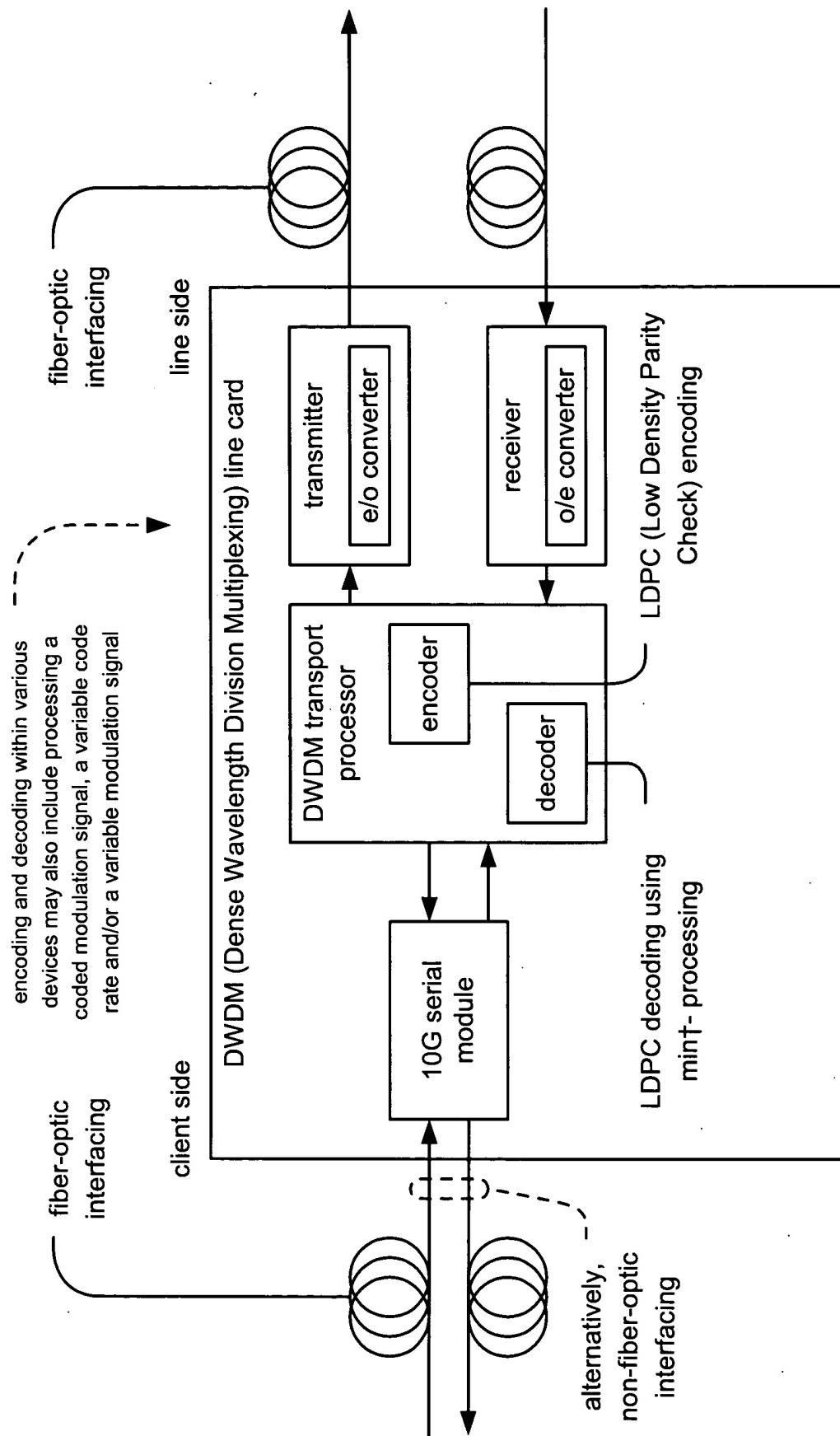
WLAN (Wireless Local Area Network) communication system

**Fig. 12**

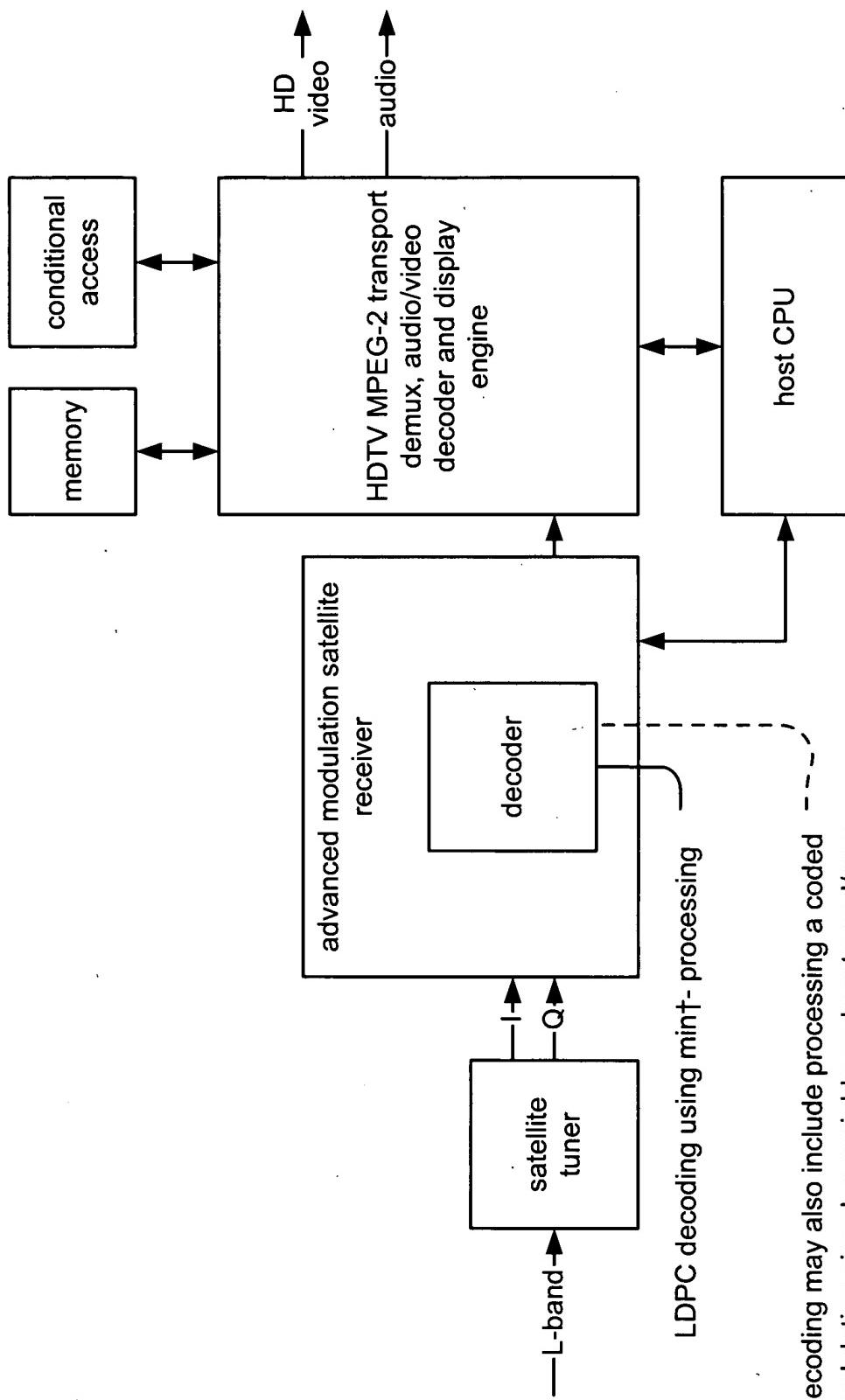


DSL (Digital Subscriber Line) communication system

**Fig. 13**



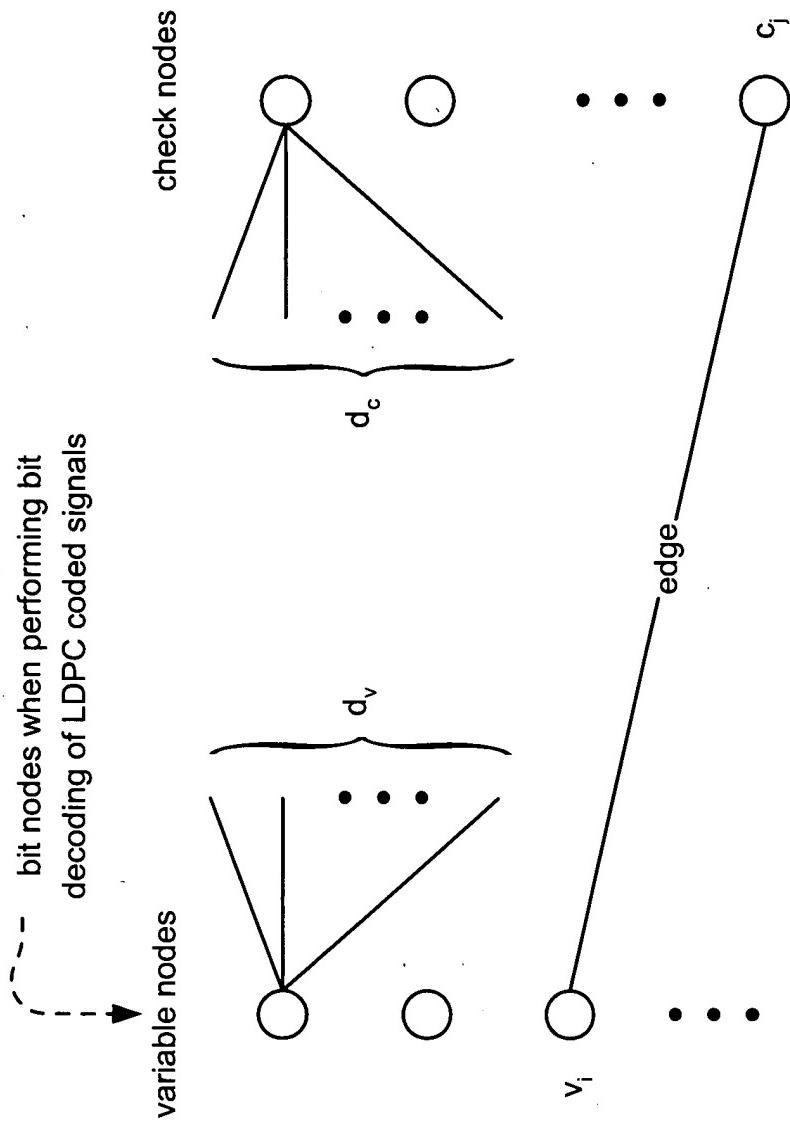
fiber-optic communication system  
**Fig. 14**



decoding may also include processing a coded modulation signal, a variable code rate and/or a variable modulation signal

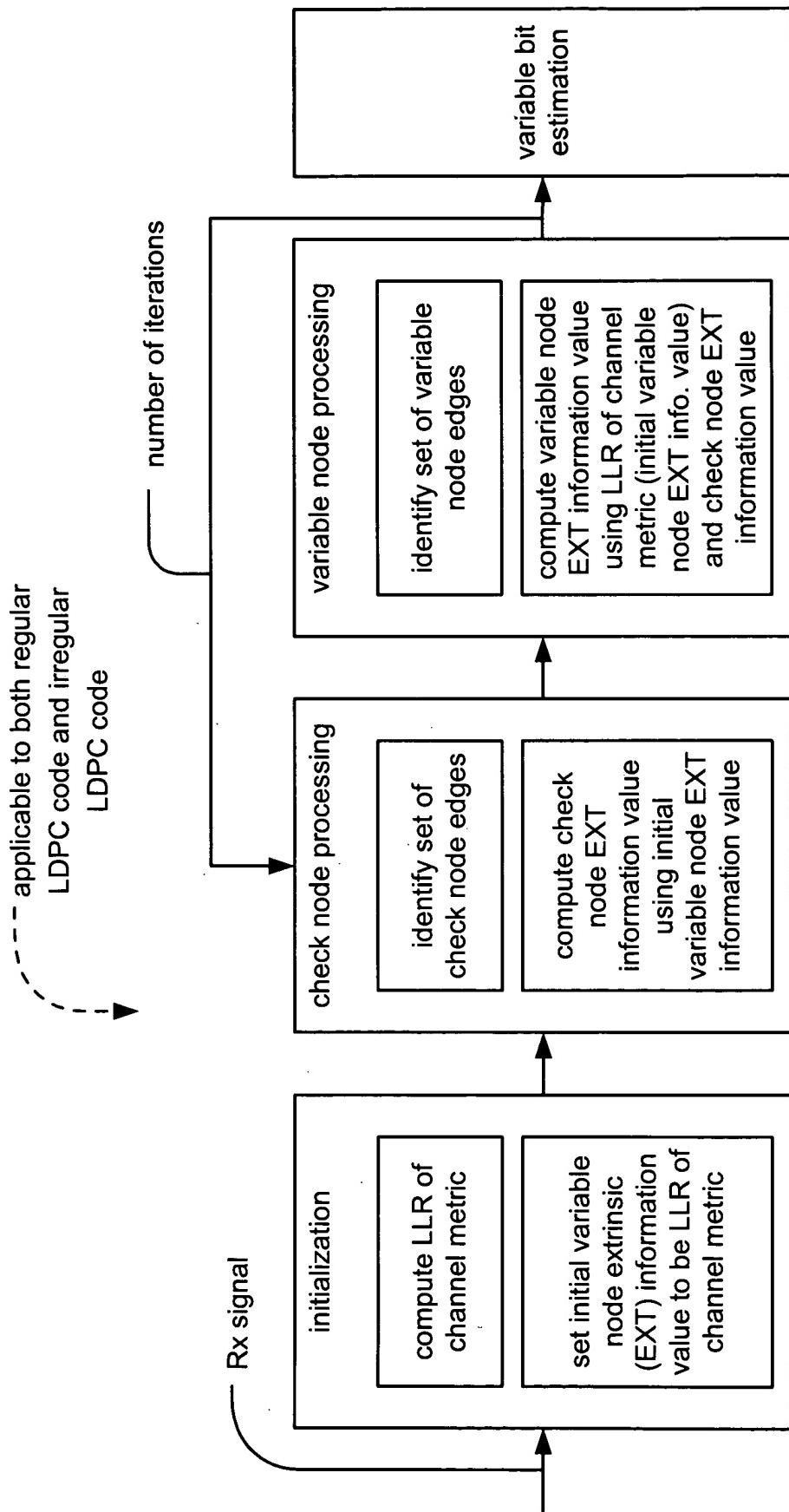
satellite receiver STB (Set Top Box) system

**Fig. 15**



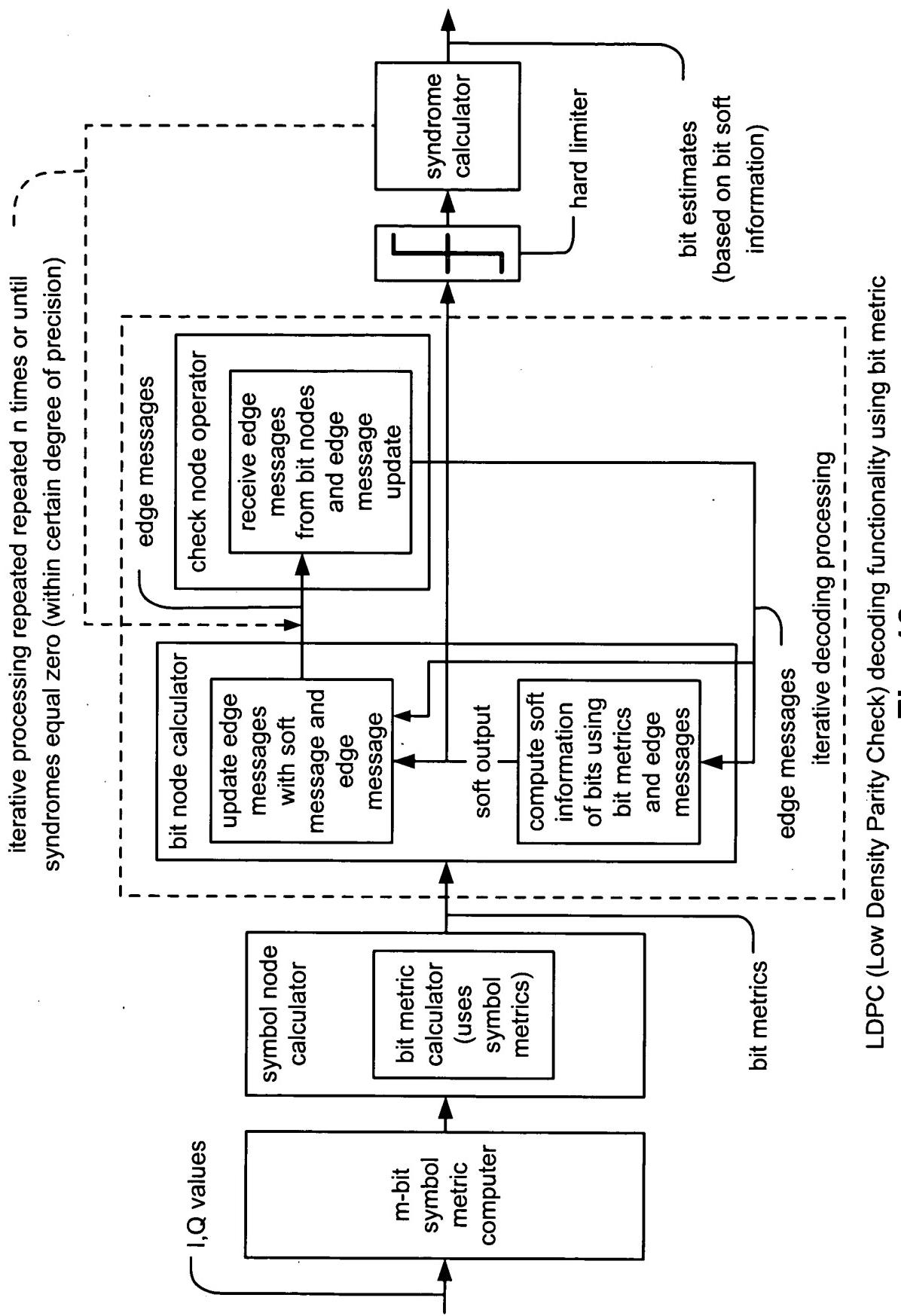
LDPC (Low Density Parity Check) code bipartite graph

**Fig. 16**



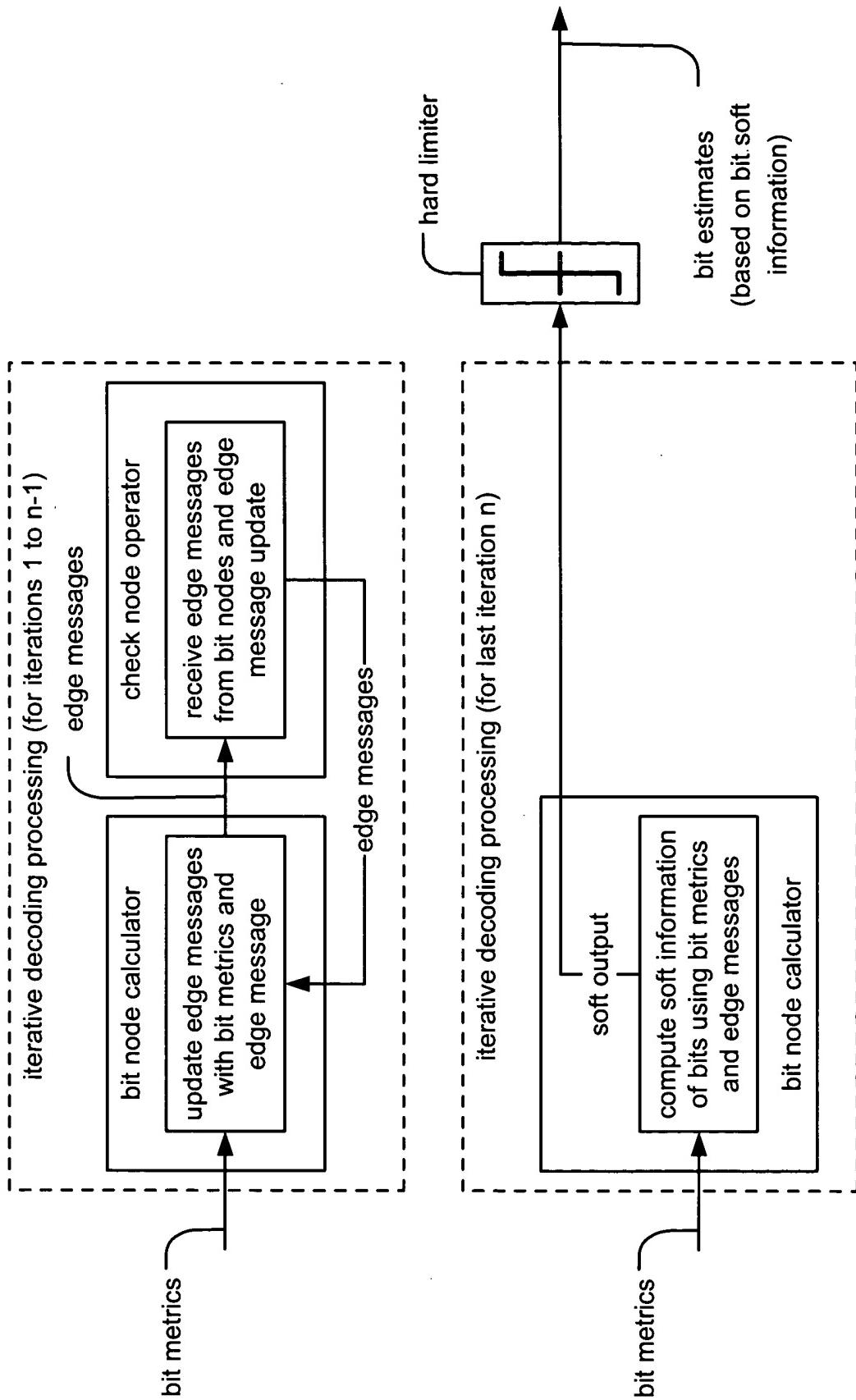
LDPC (Low Density Parity Check) code LLR (Log-Likelihood Ratio) decoding functionality

**Fig. 17**



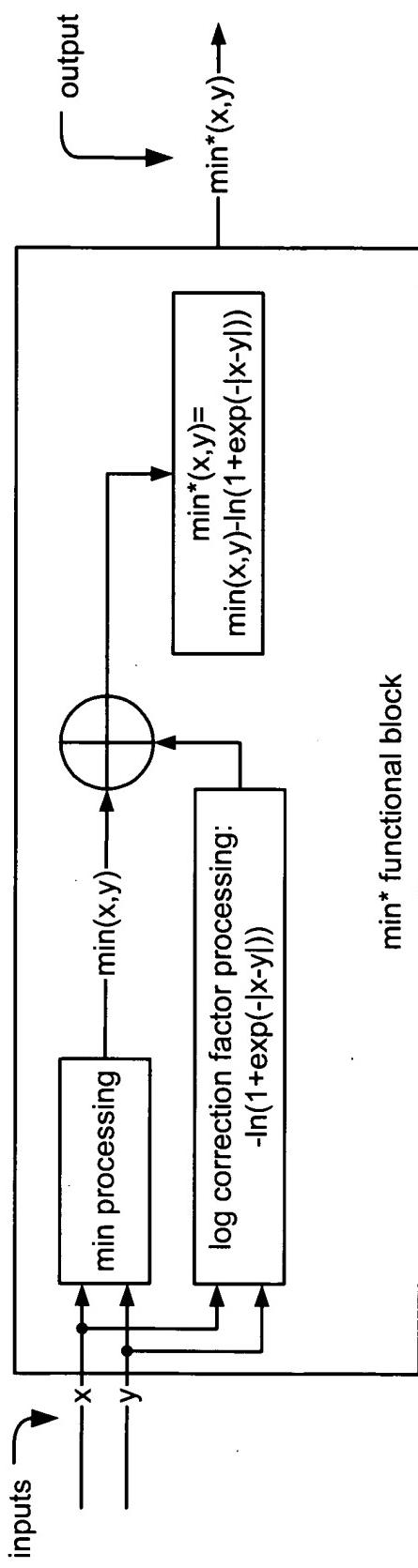
**Fig. 18**

LDPC (Low Density Parity Check) decoding functionality using bit metric iterative decoding processing

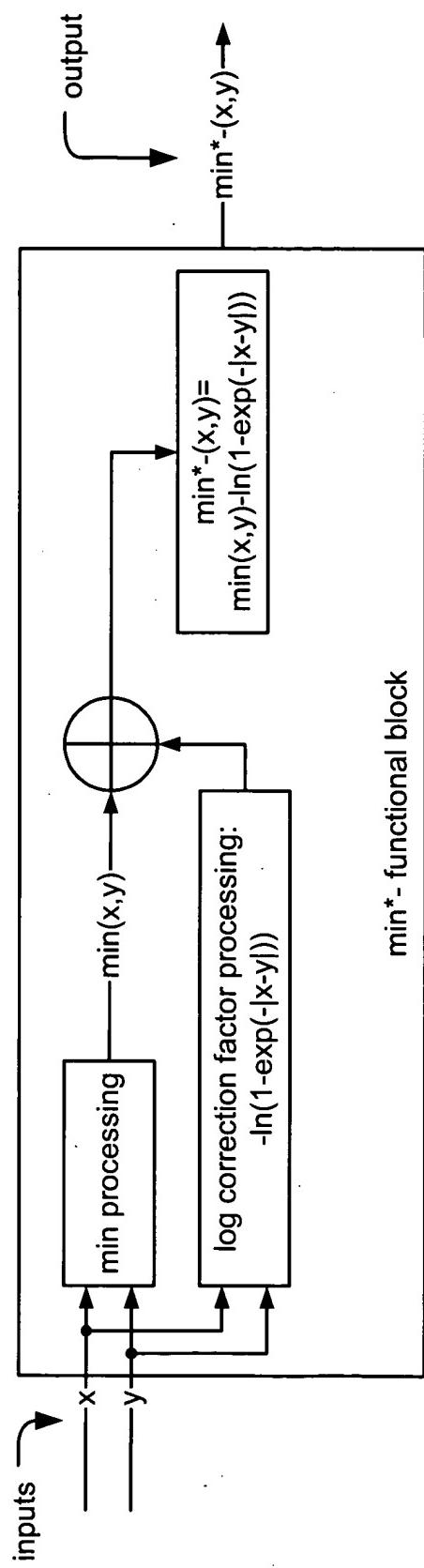


alternative LDPC decoding functionality using bit metric (when performing n number of iterations)

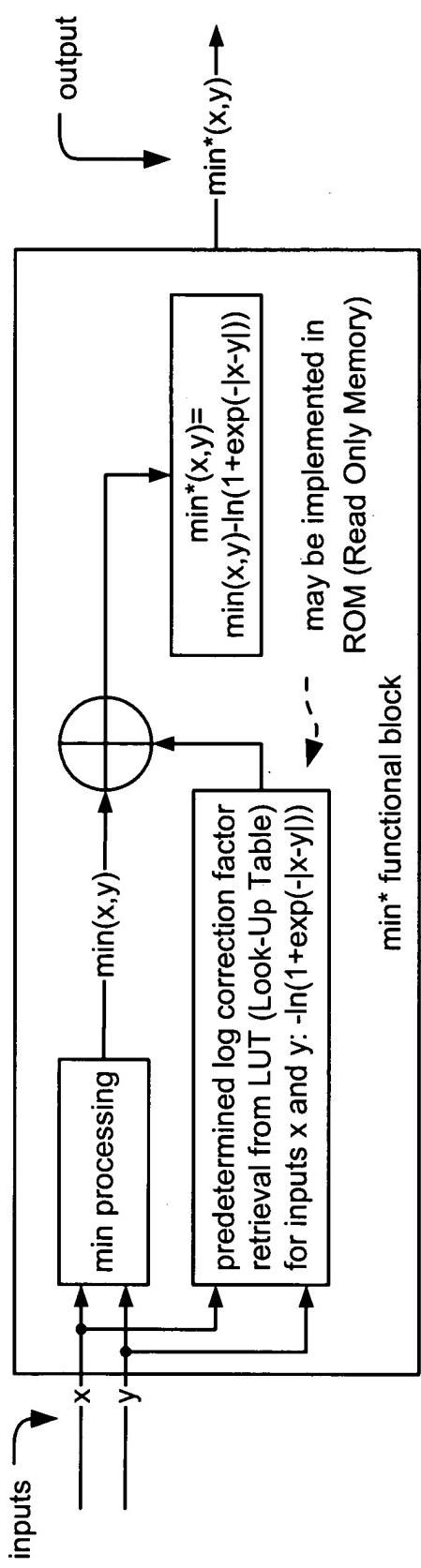
**Fig. 19**



processing of  $\text{min}^*$  functional block (performs operation of  $\text{min}^*$  operator)  
**Fig. 20A**

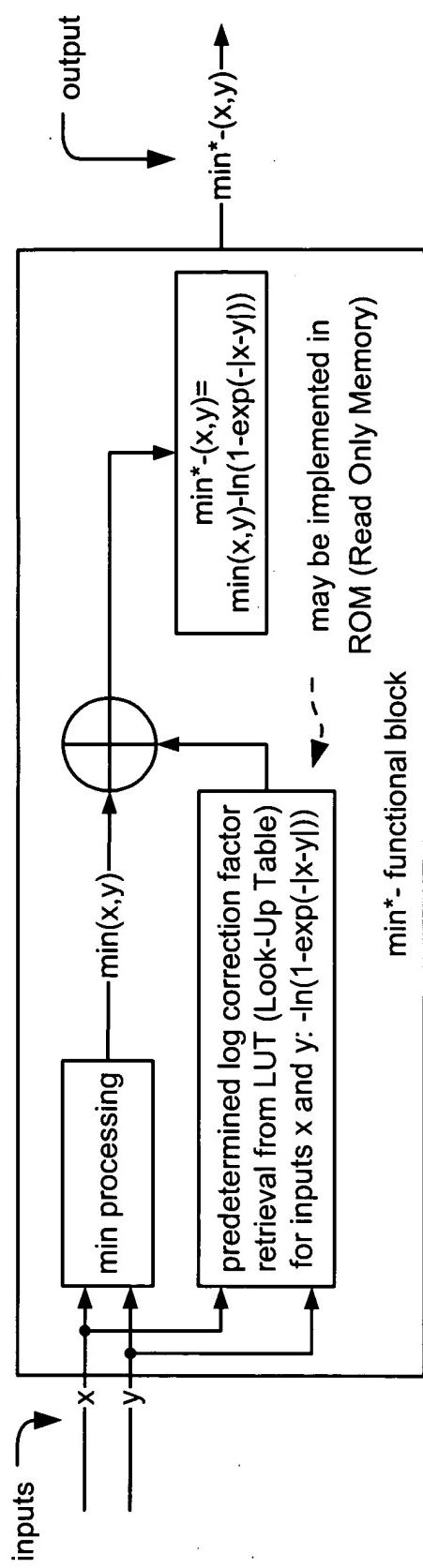


processing of  $\text{min}^*$ - functional block (performs operation of  $\text{min}^*$ - operator)  
**Fig. 20B**



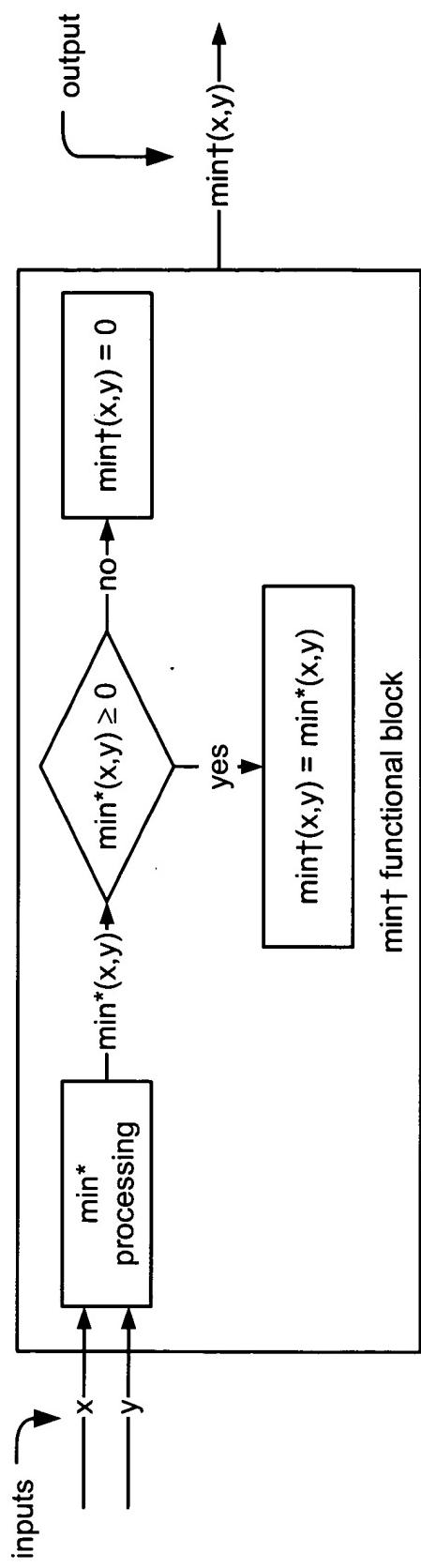
processing of **min\*** functional block (performs operation of **min\*** operator)

**Fig. 21A**



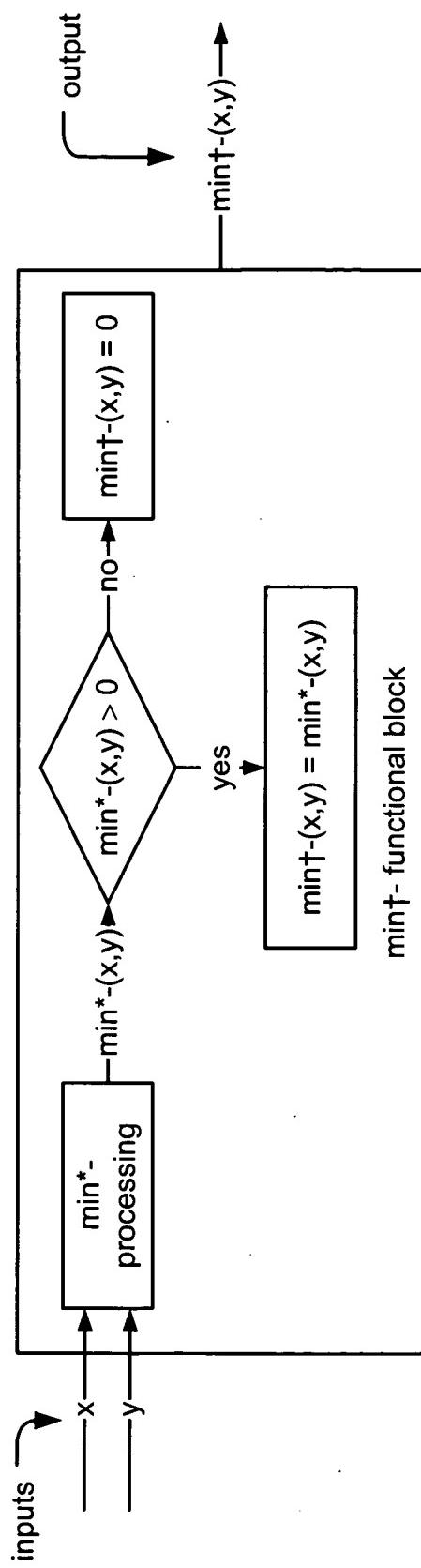
processing of **min\*-** functional block (performs operation of **min\*-** operator)

**Fig. 21B**



processing of  $\text{min}^*$  functional block (performs operation of  $\text{min}^*$  operator)

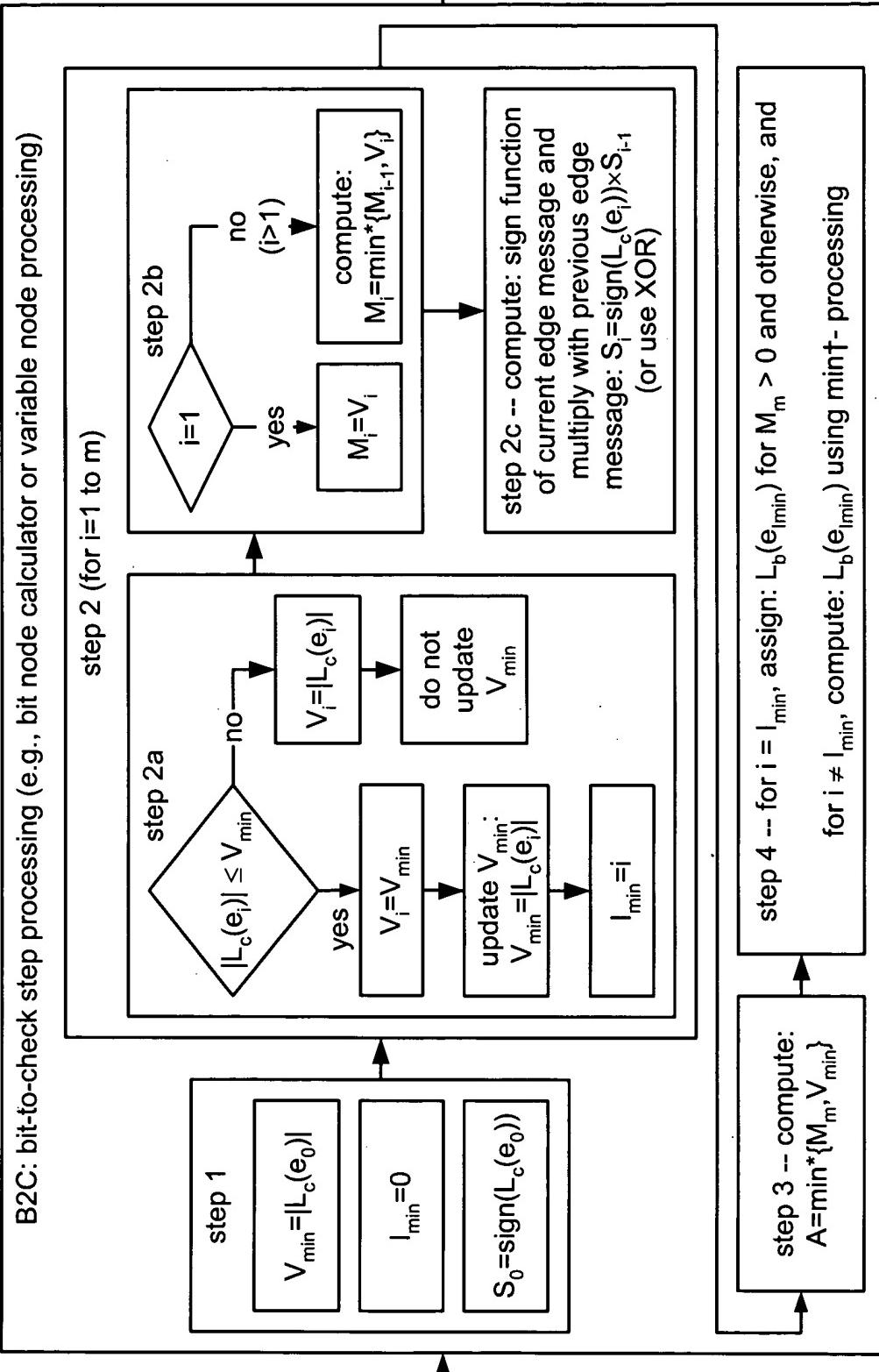
**Fig. 22A**



processing of  $\text{min}^-$  functional block (performs operation of  $\text{min}^-$  operator)

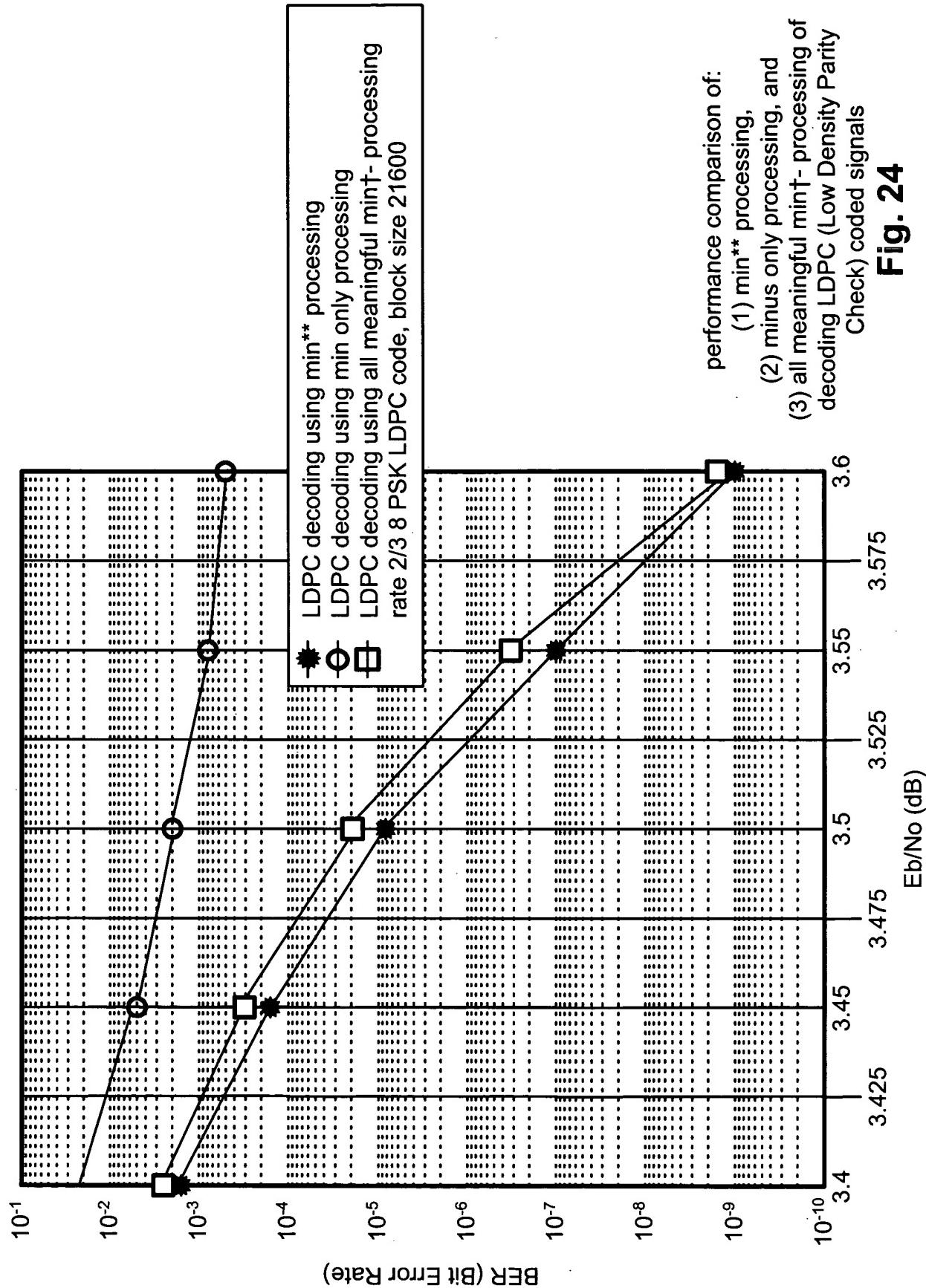
**Fig. 22B**

edge messages,  $L_c(e)$ , sent from initialization (or from C2B :check-to-bit step (e.g., check node operator or check node processing))



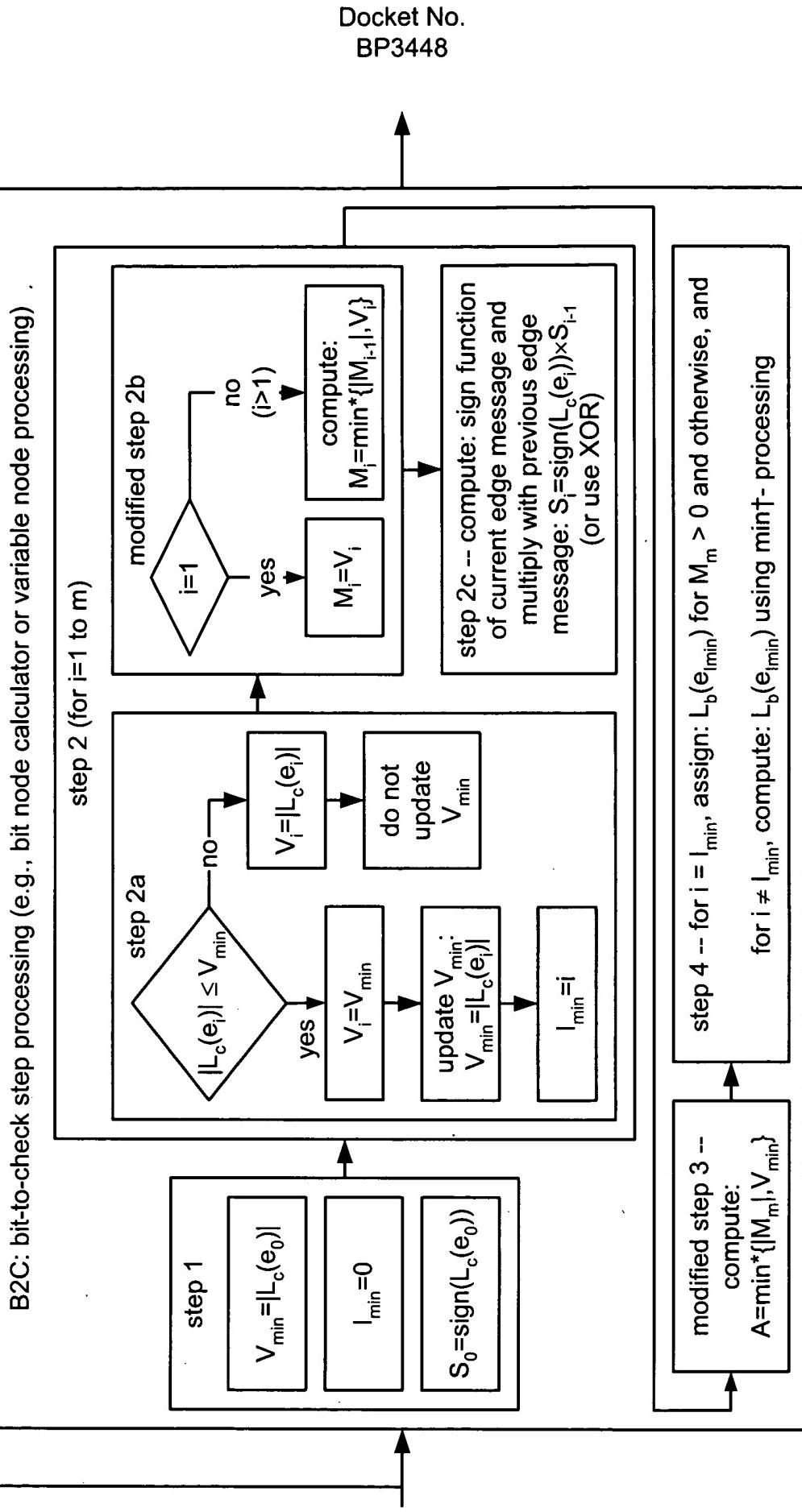
all meaningful LDPC code decoding using min†- processing (B2C: bit-to-check step processing)

**Fig. 23**



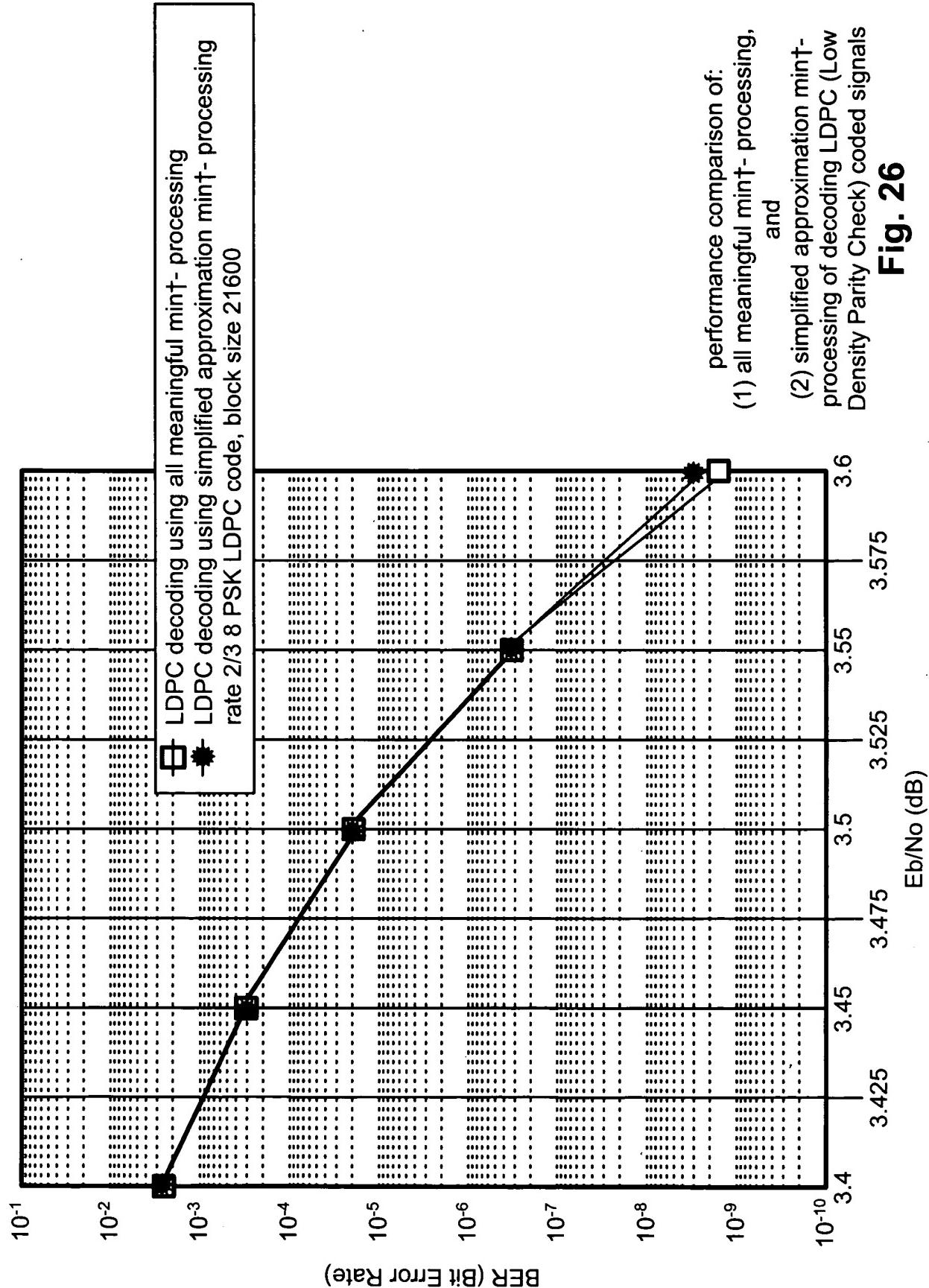
**Fig. 24**

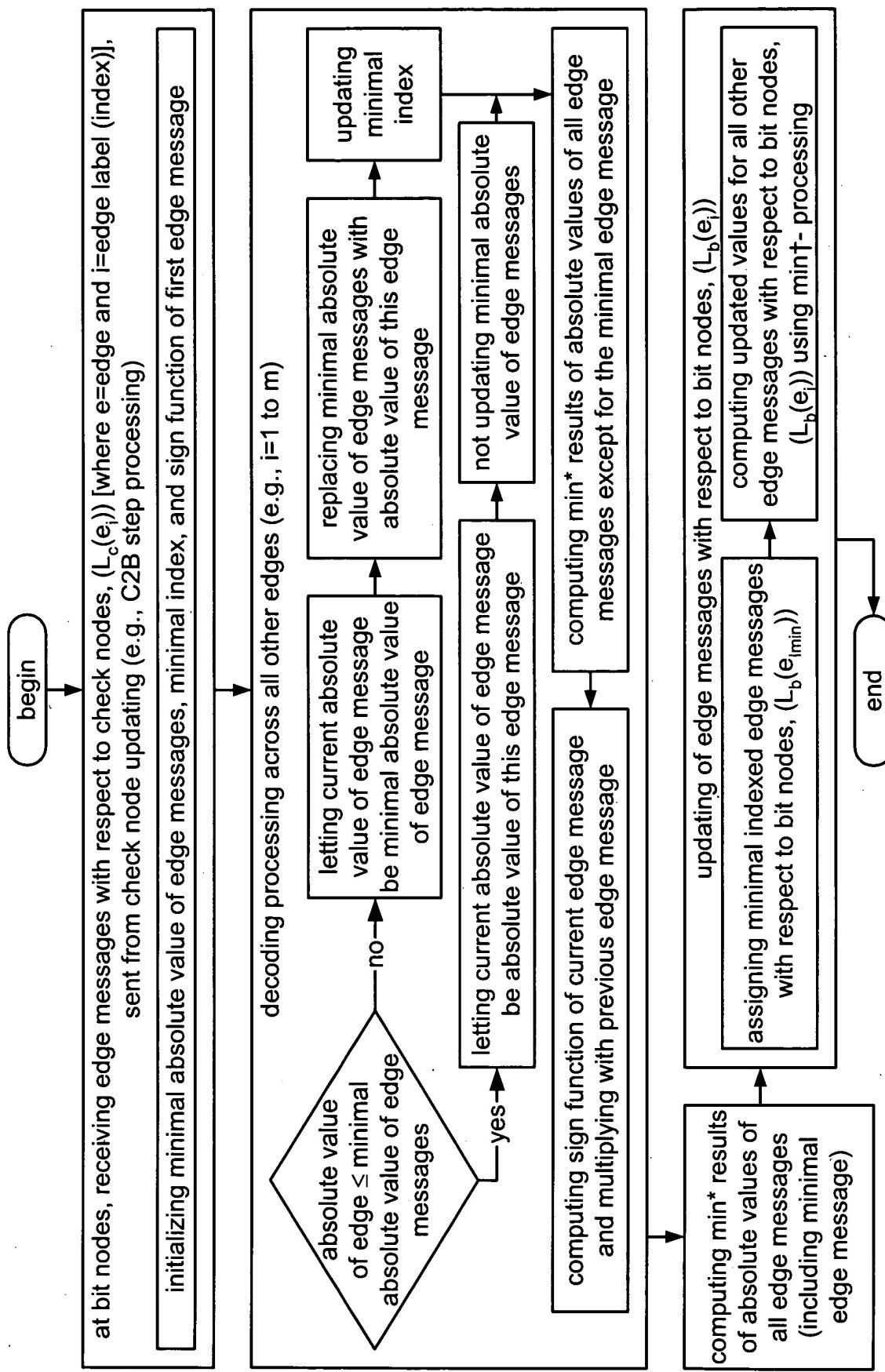
edge messages,  $L_c(e_i)$ , sent from initialization (or from C2B :check-to-bit step (e.g., check node operator or check node processing))



all meaningful LDPC code decoding using simplified approximation min†-processing (B2C step processing)

**Fig. 25**





method for performing updating edge messages with respect to bit nodes (B2C: bit-to-check step processing)

**Fig. 27**